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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,399	10/30/2003	Supratik Guha	YOR920030425US1	3291

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EXAMINER


JAGAN, MIRELLYS

ART UNIT PAPER NUMBER

2859

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/699,399	Applicant(s) GUHA ET AL. 	
	Examiner Mirellys Jagan	Art Unit 2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-12, 15-27 and 29-32 is/are pending in the application.
- 4a) Of the above claim(s) 11, 12 and 23 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-10 and 29 is/are allowed.
- 6) ☒ Claim(s) 15-22, 24-27, 30 and 32 is/are rejected.
- 7) ☒ Claim(s) 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment, filed 5/17/05, has been entered since it overcomes the prior art rejections set forth in the last Office action. However, the indicated allowability of claims 24-27 is withdrawn in view of the newly discovered reference(s) to Wells et al. and Benavides et al. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 15-22 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01.

In claim 19, the omitted steps are the steps for measuring thermal distributions. As currently written, claim 19 claims a method for detecting photons, but fails to set forth any steps for detecting a thermal distribution, as stated in the preamble, e.g., are the detected photons used to obtain a thermal distribution?

Claims 15-18, 20-22, and 30 are rejected for being dependent on rejected base claim 19.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 26, 27, and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,760,223 to Wells et al [hereinafter Wells].

Wells discloses a system comprising:

an electronic device (40) including a protecting outer layer (silicon oxide); and

a duct adapted to be physically coupled directly to the electronic device (e.g., via element 62);

wherein the electronic device forms one side of the duct (e.g., 46), and the duct is at least partially transparent to photons and comprises diamond (at diamond pane 72), so as to allow thermal measurement of the electronic device from an exterior of the duct if so desired by a user (see figure 2; column 3, lines 7-18, 28-32, and 57-60; and column 4, lines 12-31).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,548,895 to Benavides et al [hereinafter Benavides].

Benavides discloses a prior art system comprising:

an electronic device;

a duct adapted to be physically coupled directly to the electronic device; and

a coolant flowing through the duct so as to cool the electronic device;

wherein the electronic device forms one side of the duct (see figure 2; column 3, line 58-column 4, line 2).

Benavides does not disclose the coolant and the duct of the prior art system being at least partially transparent to photons with wavelengths between about 0.1-20 microns, and the duct comprising quartz; wherein the duct allows for the capture of thermal information from the device during operation of the electronic device during operating conditions for which the device is designed, and will allow thermal measurement of the electronic device from an exterior of the duct.

However, Benavides discloses cooling systems for an electronic component, where the system has a transparent portion that is at least partially transparent to photons with wavelengths between about 0.1-20 microns (made of quartz). The transparent part creates a window to the electronic component, which can allow optical access to the electronic component (see figure 19; column 2, lines 1-15; and column 16; lines 26-52).

Referring to claims 24 and 26, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the prior art system by making the duct and

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coolant at least partially transparent to photons, since Benavides teaches that it is desirable to provide optical access to a chip of an the electronic component.

Furthermore, referring to claims 25 and 26, the transparent portion of the system of the prior art and Benavides will allow for the capture of thermal information from the device during operation of the electronic device during operating conditions for which the device is designed, and will allow thermal measurement of the electronic device from an exterior of the duct, is so desired by a user.

Allowable Subject Matter

8. Claims 3-10 and 29 are allowed.

9. Claims 15-22 and 30 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

10. Claim 31 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is an examiner's statement of reasons for allowance:

The prior art of record does not disclose or suggest the following in combination with the remaining limitations of the claims:

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A system for measuring thermal distributions of an electronic device during operation, the system comprising a duct adapted to be coupled with an electronic device, wherein the electronic device forms one side of the duct, a coolant flowing through the duct, and a photon detector located adjacent to the duct for detecting photons emitted from the electronic device (see claim 7).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

12. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or suggest the following in combination with the remaining limitations of the claims:

A method for detecting thermal distributions of an electronic device during operation, the method comprising detecting photons from the electronic device during operation of the electronic device using a photon detector, wherein the electronic device forms one side of the duct, and a coolant flows through the duct (see claim 19).

An apparatus for allowing thermal measurements, the apparatus comprising an electronic device that includes a protecting outer layer (see claim 31).

Response to Arguments

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13. Applicant's arguments with respect to claims 24-27 and 32 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents and publications disclose cooling means for an electronic device:

U.S. Patent 6,501,654 to O'Connor et al

U.S. Patent Application Publication 2005/0092007 to Gutfeld et al

U.S. Patent Application Publication 2005/0098880 to Torkington et al

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mirellys Jagan whose telephone number is 571-272-2247. The examiner can normally be reached on Monday-Friday from 11AM to 4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ
May 25, 2005



Mirellys Jagan
Patent Examiner
Technology Center 2800